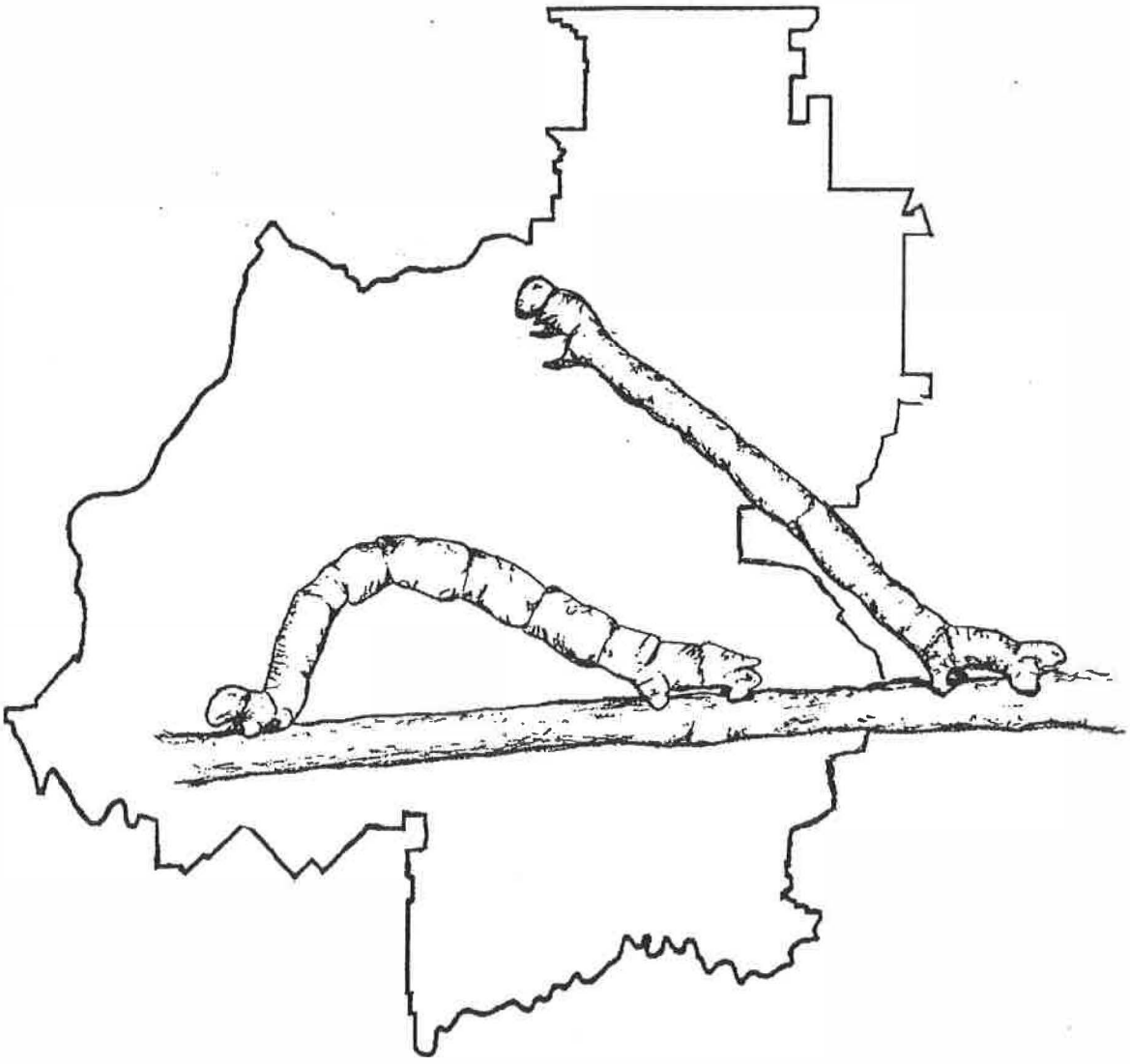
BIOLOGICAL EVALUATION OF ELM SPANWORM POPULATIONS, ALLEGHENY NATIONAL FOREST, PENNSYLVANIA 1994



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Morgantown, WV
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NORTHEASTERN AREA
State and Private Forestry

FOREST SERVICE
U S
DEPARTMENT OF AGRICULTURE

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SUMMARY

The elm spanworm (ES), *Ennomus subsignarius* (Hubner), was a major defoliator of the northern hardwood forests over much of the Allegheny National Forest in 1993. During 1991, 1992 and 1993 ES defoliation totalled 313,759 acres with 83 percent occurring in 1993 alone. Defoliation was concentrated in American beech, sugar and red maples, and black cherry. Approximately 58,000 acres have received multiple years of ES defoliations since 1991. The 1994 aerial defoliation survey showed no ES defoliation and ES egg mass surveys indicate a total collapse of the population. No ES defoliation is expected in 1995 or the near future.

INTRODUCTION AND BACKGROUND

Much of the northern hardwood forests of the Allegheny National Forest (ANF) has been affected by an ES infestation which begain in 1991. Since then, ES infestations have defoliated a cumulative total of 313,759 acres (22,910 acres in 1991; 30,119 acres in 1992; and 260,730 acres in 1993). There was no ES defoliation in 1994. Defoliation has been concentrated in American beech trees which often have been completely stripped of foliage. Where the infestations have been concentrated, sugar and red maples, and black cherry and other deciduous trees were also eventually also became defoliated.

In 1994 we conducted an ES suppression project on 55,733 acres of the ANF. These areas had been defoliated during at least two of the past three years.

OBJECTIVES

The objectives of this biological evaluation were: 1) to accurately assess current ES overwintering egg mass densities within the northern hardwood forest type of the ANF defoliated for two or three years since 1991; 2) to determine the likelihood that ES infestations would continue in these areas in 1995; 3) to determine the most likely impacts on ANF forest resources from a continuation of the current infestation; and 4) to develop treatment alternatives and recommendations.

ELM SPANWORM INFESTATIONS

The elm spanworm periodically reaches outbreak populations in the eastern deciduous forests of the United States and Canada. During these outbreaks, most trees over large forested areas experience noticeable, and often complete defoliation, because this insect feeds on a wide variety of host species. Populations usually are at innocuous densities for many years or even decades before outbreaks develop.

The cause of elm spanworm population outbreaks probably relates to higher than normal survival because of abundant food and few natural controls. However, when outbreaks do occur, natural control factors such as the two parasitoid wasps attacking the egg stage at different times (*Ooencyrtus ennomophagus* early, *Telenomus droozi* late), and late spring frosts denying larvae food, have influenced the collapse of these outbreaks. Most outbreaks for which records exist have lasted from one to several years.

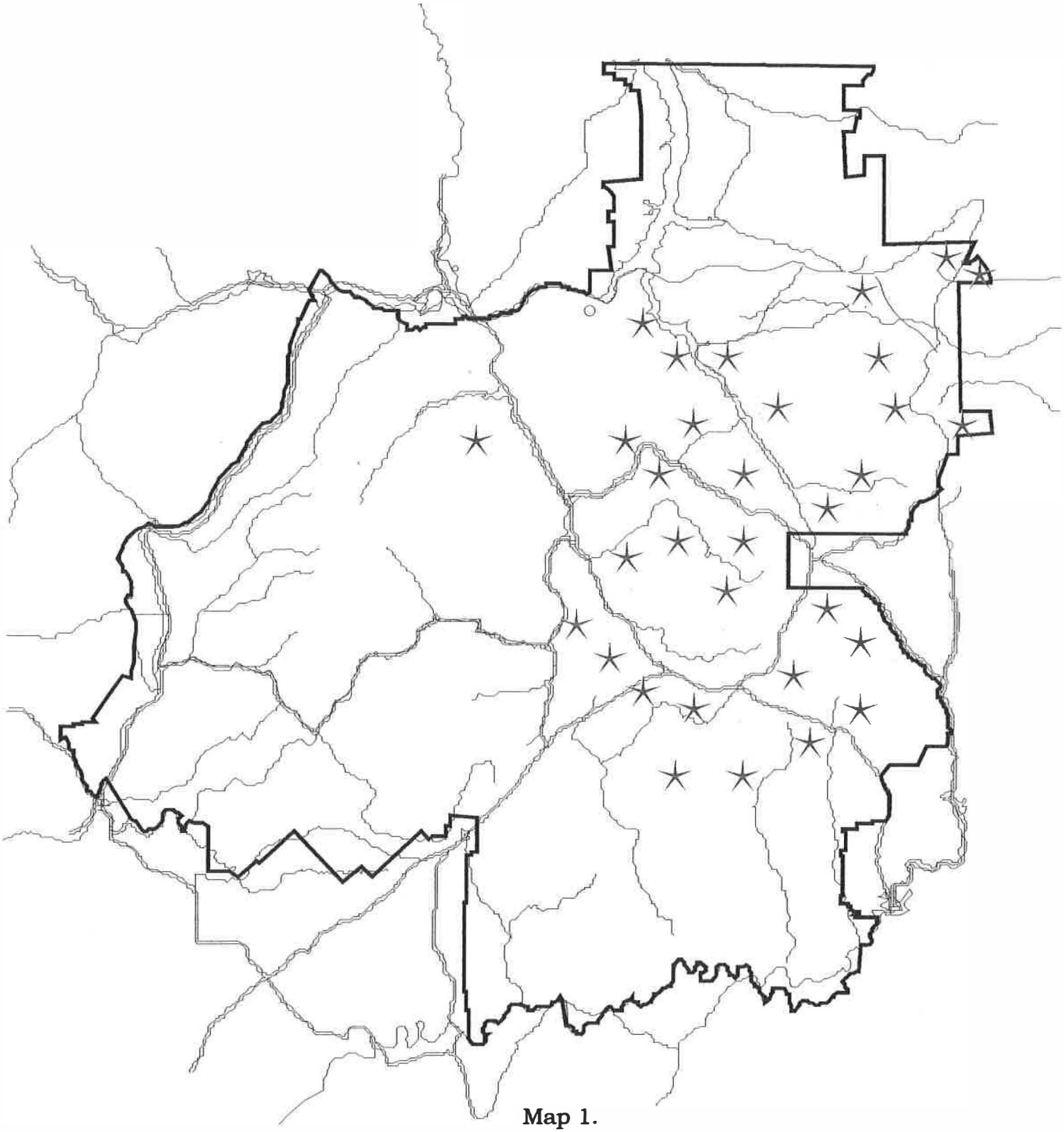
RESULTS

Map 1 shows the approximate location of the 1994 egg mass survey sites. No new egg masses were found. There was a complete crash of the elm spanworm population, most likely due to the egg parasites, *Ooencyrtus ennomophagus* and *Telenomus droozi*.

FHP recommends no action be taken at this time. Continue monitoring of non-target moths and parasitic wasps.

Elm Spanworm Eggmass Sample Sites

★ sample site location



Map 1.